Tactical-scale Aerostat for Force Protection Applications

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Requirement

- Provide aerial surveillance capability to tactical operations units
- Daytime & nighttime operations
- Low procurement cost
- Low operating cost
- Minimize operator training and skills
- Maximize COTS utilization

Typical Solution

Alternative Solution

("The other white meat…")

Aerostat:

Any lighter than air craft such as a balloon or dirigible

Tactical Aerostat for a tactical-scale Force Protection System (TAFPS)

- 6 – 15' diameter
- 4 – 8' height (thickness)
- Inexpensive plastic envelop
- Payload up to 50 pounds (ideal)
- 1-2 man transportable
- Operating altitude 100-1,200 feet
- No flight school required
- Cost: less than $30,000, "fully loaded"

Features

- Payloads can be any technology or function —just less than 12 pounds
- At altitude (1,200 ft), surveillance > 11,000 mi^2
- Envelop < $4,000
- Low visibility (can be camouflaged for sky)
- Training focused on mission equipment, not flying
- 20 minutes to launch from sealed carrier
- On-station time: 7-10 days
- Slow descent in event of gun fire
- Easy to repair and re-launch
- Industry-proven capabilities, performance

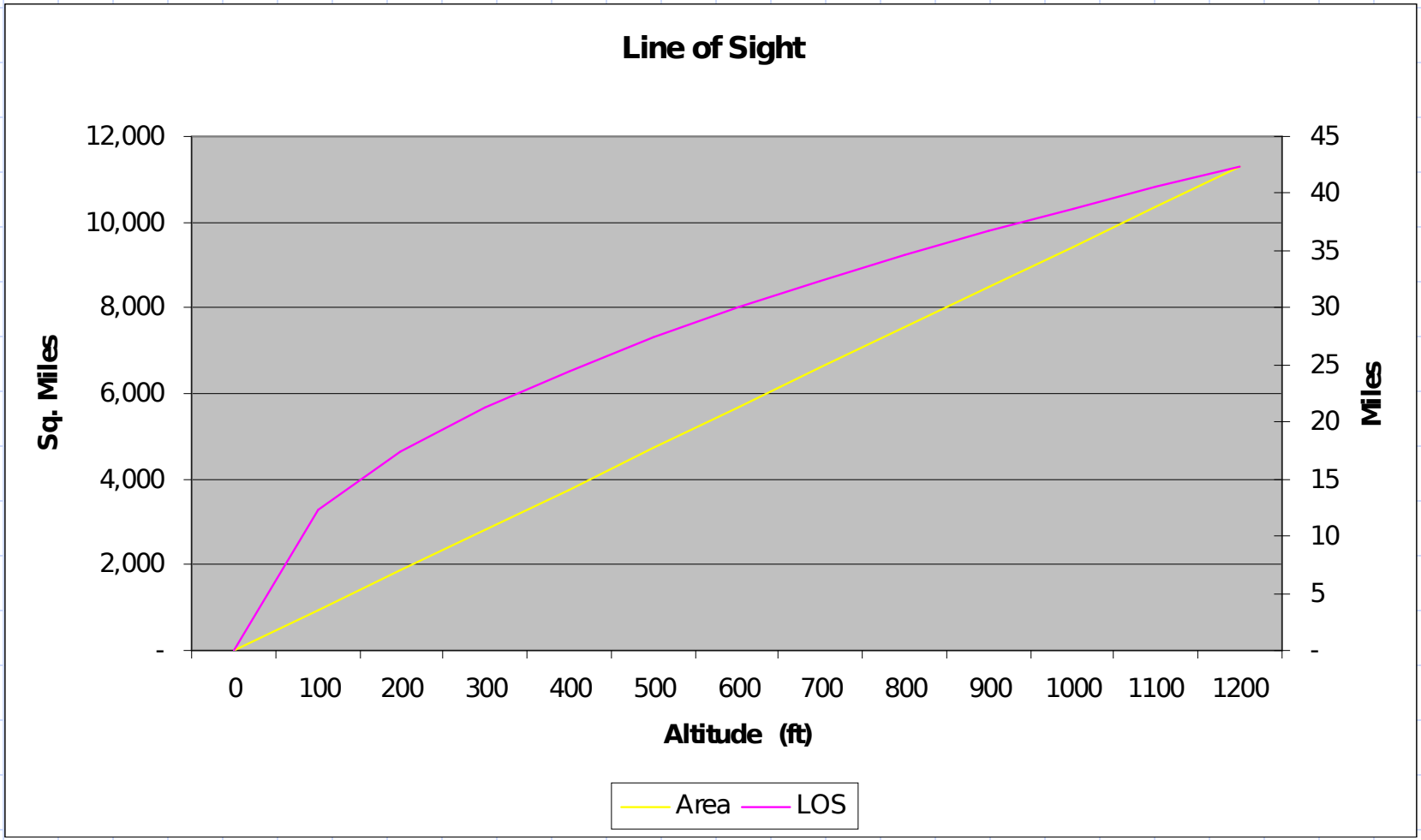
Functions

- Low to medium-altitude perimeter surveillance
- Wind direction, speed
- Wind content sampling for chemical or radiation
- Repeater/Transceiver function
- Low light imagery

Benefits over RPV

- Significant cost savings
  - Platform
  - Training
  - Maintenance
- High quality point surveillance exploitation
- Ease of employment and re-deployment
- Speed of employment
- Low profile (sound, visibility)
- Low loss rate

Range and Area



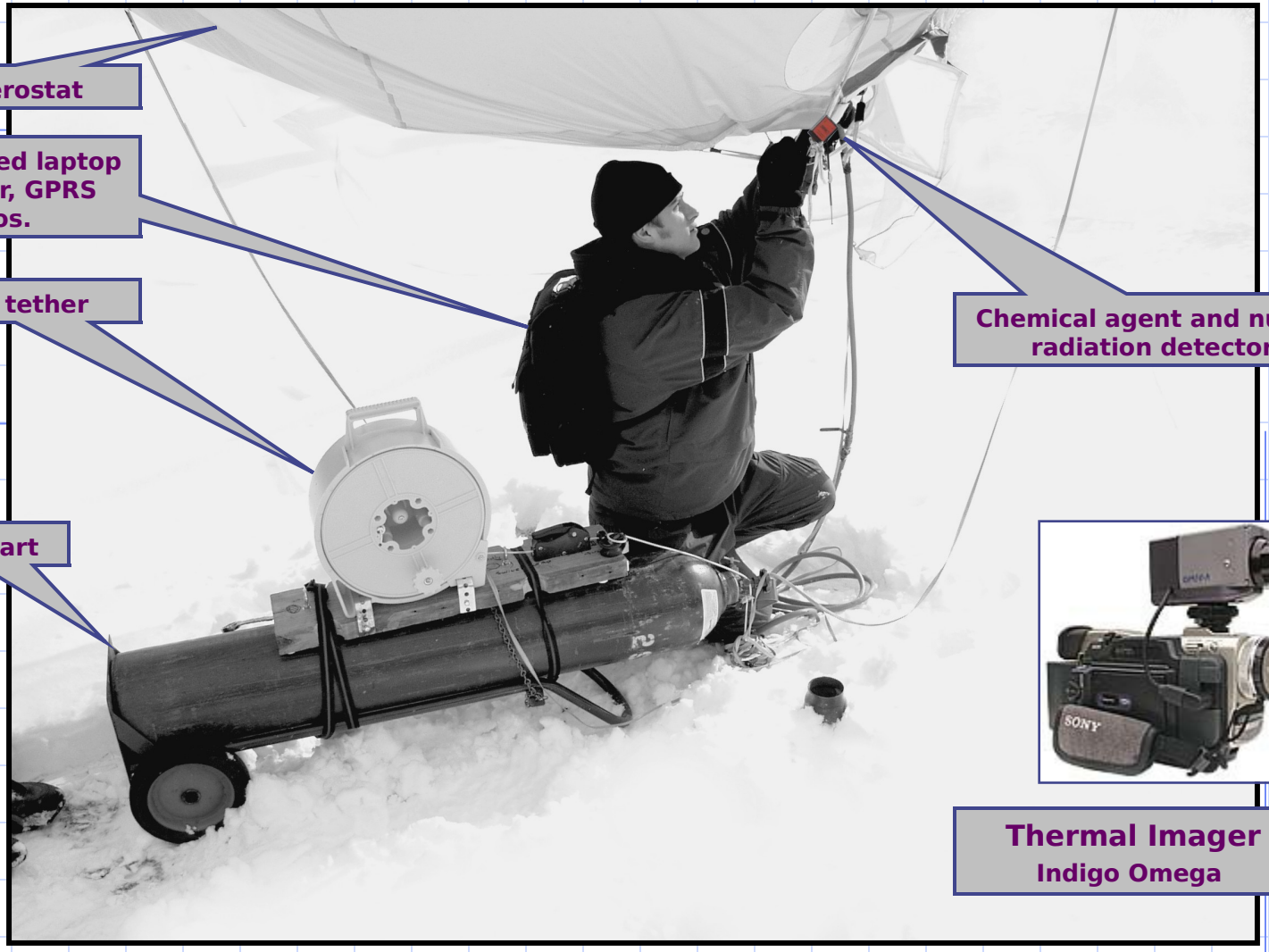
Comparisons

Factor	TAFPS	RPV
Cost	<$30,000	$100,000 to > $1M
Training	Mission Payload, minimal flying training	RPV flying school, mission payload
Loss of craft	Patch and re-inflate Replace: $<4,000	Repair w/skilled tech. Replace: >$75,000
Range	100-1200 ft altitude, point surveillance	100-20,000 feet, area surveillance
Best for	Perimeter surveillance of encampment, air sensors	Area surveillance and armed attack

Experience

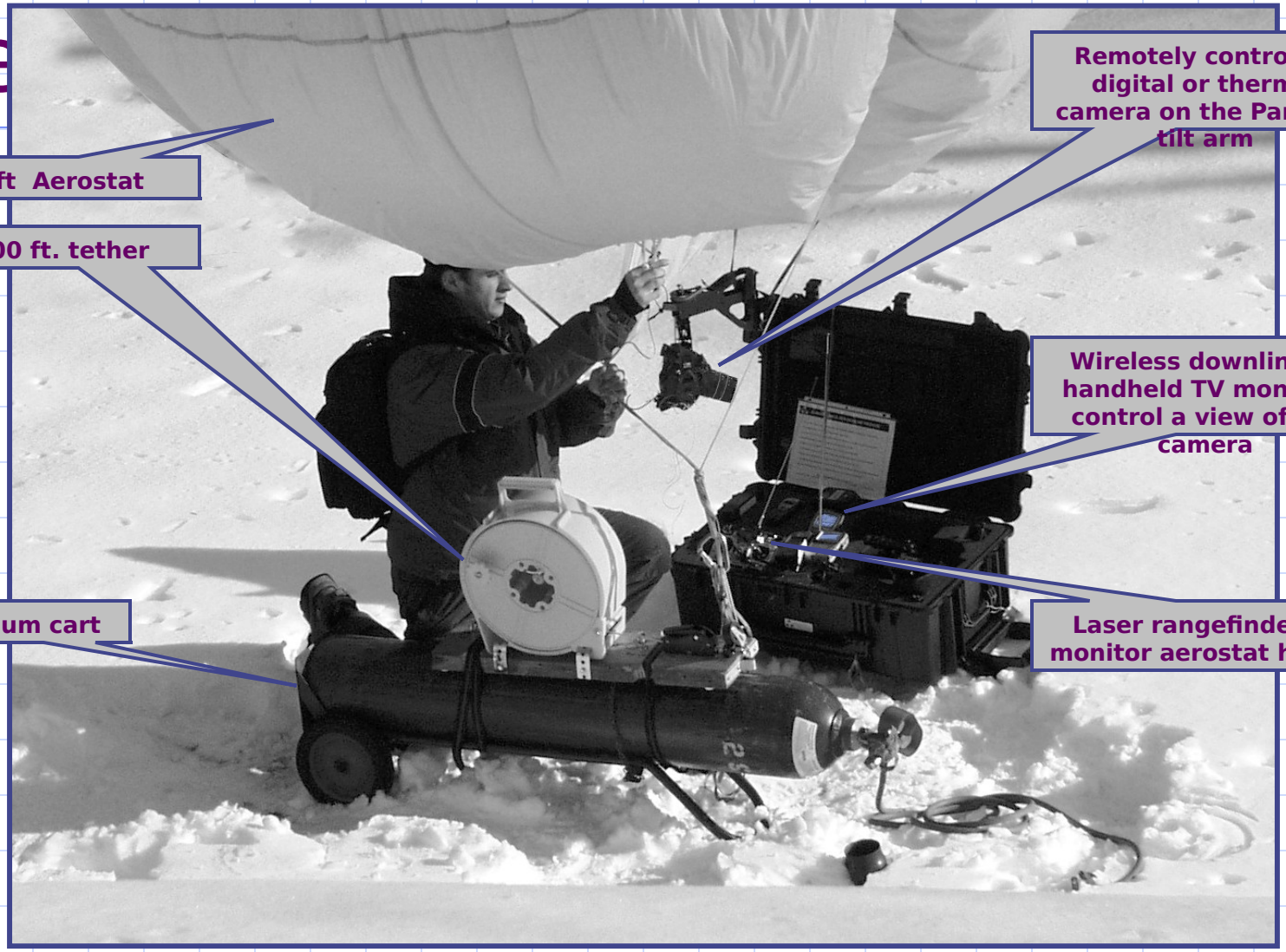
- Most experience to date has been environmental control, landscape design, cell phone tower placement, low profile surveillance
- Some sensitive government location work for perimeter surveillance

Aerostat Deployment of Sensors



This quickly deployed aerostat unit is carried, set up, launched, and flown in the field by two people. The payload can include down-linked thermal cameras, nuclear radiation detectors (dosimeters) or chem/bio detectors

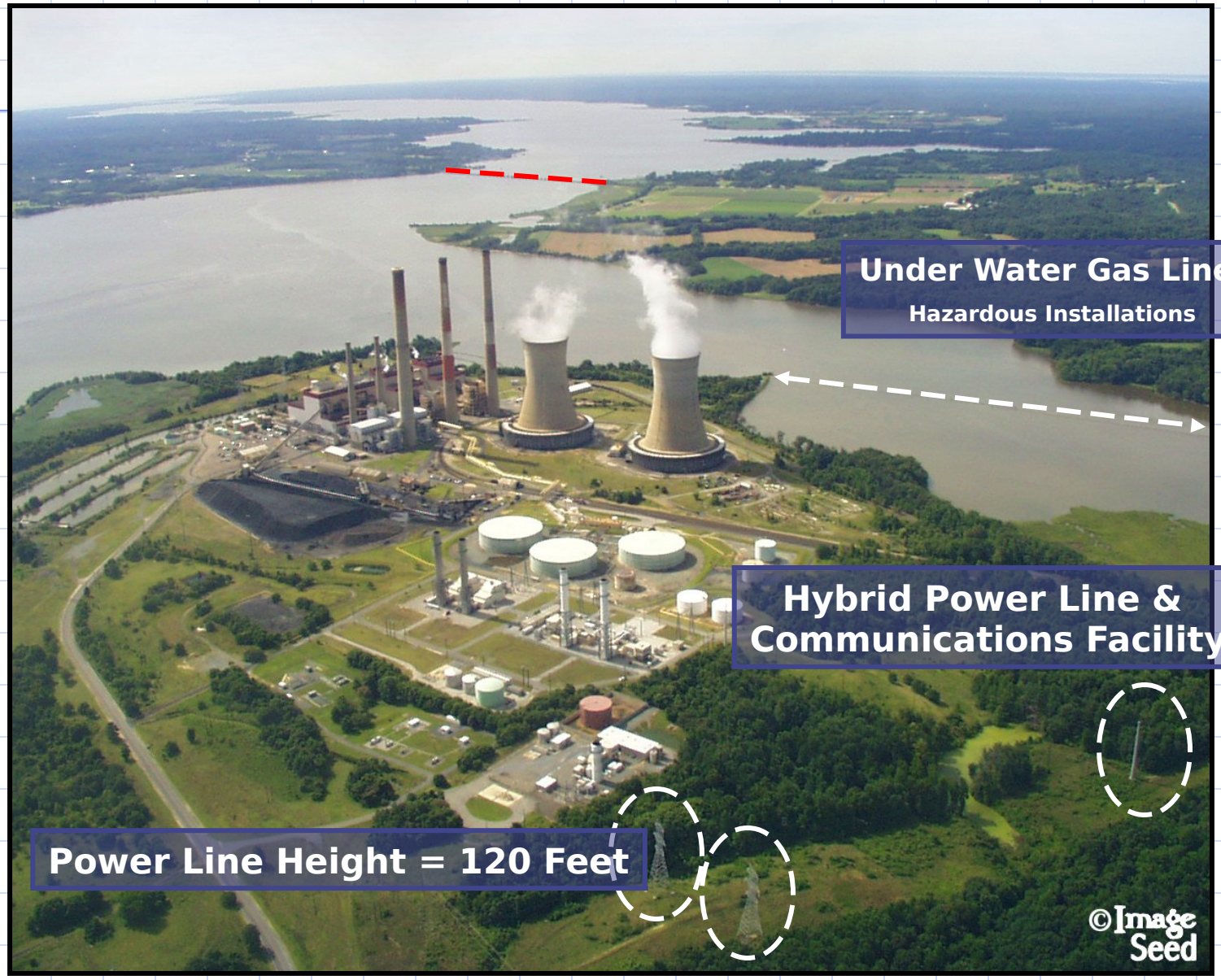
Aerostat Deployment of Se


12 ft Aerostat
1000 ft. tether
Helium cart
Remotely controlled digital or thermal camera on the Pan and tilt arm
Wireless downlink to handheld TV monitors control a view of the camera
Laser rangefinder to monitor aerostat height

This quickly deployed aerostat unit is carried, setup and launched in the field by one person.

Images from digital or thermal cameras are taken from elevations ranging from 30 to 200 meters. downlinked to the ground. The aerial views can then be edited then

Surveillance Imaging



Aerial View from 180’

Line of sight tests above a thick canopy are quickly obtained using 360 degree camera.

All-Terrain Mobility

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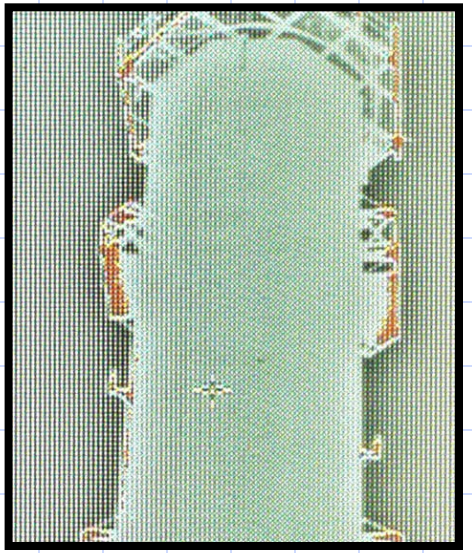

WMD Scene Assesment

1st Responders can utilize low altitude perspectives for rapid scene assesment.

Rapid Deployment
Superior Perspective
Multiple payloads
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Summary

Aerostats….

Not too sexy…

…but very practical.